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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/620,943	07/21/2000	Robert Keller	TI-30714	4054

7590 06/09/2003  
J. Dennis Moore  
TEXAS INSTRUMENTS INCORPORATED  
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EXAMINER

KAO, CHIH CHENG G

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 06/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/620,943

Applicant(s)

KELLER ET AL.

Examiner

Chih-Cheng Glen Kao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 2/24/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2,3,5,6 and 18-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,3,5,6 and 18-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 17 April 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 2, 3, 5, 6, 18, 20, and 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoen (US Patent 6,253,001) in view of Wingo (US Patent 5796884) and Bowers et al. (US Patent 6456751).
2. With regards to claims 18 and 23, Hoen discloses an optical, path-to-sight link, comprising light beams (col. 5, line 55) steered by a controllable beam steering device (Fig. 1, #16) with predetermined control signals (col. 3, lines 5-6) having a plurality of two axis rotatable mirrors capable of being rotated in a single axis (Fig. 6), and an actuator (col. 4, lines 25-28) with inherent control signals.

However, Hoen does not disclose a transmitter with a light source and micromirrors, a receiver with a photodetector, and a separate control coupling control of the micromirror and receiver by a circuit.

Wingo teaches the light source and photodetector as a transmitter and receiver. Bowers et al. teaches a transmitter with a light source (Fig. 5, #64) and micromirrors (Fig. 3, #34), a

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receiver with a photodetector (Fig. 4, #58), and a separate control coupling control of the micromirror and receiver by a circuit (Fig. 3, control between #52 and 26).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the transmitter and receiver of Wingo with the device of Hoen, since these components are considered art-recognized equivalents in that they both emit and receive light. It would have been within routine skill in the art to substitute one for another. One would be motivated to have a transmitter and receiver to send data for telecommunications (col. 1, lines 1-25) as implied from Wingo.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the separate control, receiver, and transmitter of Bowers et al. with the suggested device of Hoen in view of Wingo, since one would be motivated to have these components for sending signals (col. 1, lines 10-20) and feedback stabilization (Title) as implied from Bowers et al.

3. With regards to claim 2 and 24, Hoen further discloses having a plurality of two axis rotatable mirrors capable of being rotated in any orientation (Fig. 1, #22, and Fig. 6).

4. With regards to claim 3 and 25, Hoen further discloses having a plurality of two axis rotatable mirrors capable of being rotated in a single axis (Fig. 1, #22, and Fig. 6).

5. With regards to claim 5 and 26, Hoen further discloses mirrors comprising silicon (col. 9, lines 56-60).

6. With regards to claim 6 and 27, Hoen further discloses mirrors comprising metal (col. 9, lines 56-60).

7. With regards to claim 20, Hoen in view of Wingo and Bowers et al. suggests a device as recited above.

However, Hoen does not disclose a circuit detecting light on the photodetector and generating a detection signal as a control signal to the controller.

Bowers et al. teaches disclose a circuit detecting light on the photodetector (Fig. 4, #58) and generating a detection signal as a control signal to the controller (Fig. 3, #52).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have circuit for a detection signal as a control signal of Bowers et al. with the suggested device of Hoen in view of Wingo, since one would be motivated to have these components for sending signals (col. 1, lines 10-20) and feedback stabilization (Title) as implied from Bowers et al.

8. Claims 19, 22, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoen in view of Wingo and Bowers et al. as applied to claim 18 and 23 above, and further in view of Abeles et al. (US Patent 6014237).

Hoen in view of Wingo and Bowers et al. suggests a system as recited above.

However, Hoen does not disclose modulation and demodulation for Ethernet protocol.

Abeles et al. teaches modulation and demodulation (Abstract, lines 13-20 and col. 14, lines 28-32)) for a variety of protocols including Ethernet (col. 7, lines 9-12 and 18-20).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to include modulation, demodulation, and Ethernet protocol of Abeles et al. with the system of Hoen in view of Wingo and Bowers et al. since one would be motivated to utilize a system that has far fewer components than conventional optical transmission systems and having a potential for much larger bandwidths to process greater amounts of information as shown by Abeles et al. (col. 2, lines 45-52, and col. 1, lines 40-46).

9. Claims 21 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoen in view of Wingo and Bowers et al. as applied to claim 18 and 23 above, and further in view of Duguay (US Patent 5,671,304).

Hoen in view of Wingo and Bowers et al. suggests a system as recited above.

However, Hoen does not disclose a VCSEL laser diode.

Duguay teaches a VCSEL laser diode (col. 6, lines 22-24).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to include the VCSEL laser diode of Duguay with the system of Hoen in view of Wingo and Huibert et al. since one would be motivated to utilize its extremely high performance levels as shown by Duguay (col. 2, lines 26-39) for strong signals, as well as cost and size purposes.

***Response to Arguments***

10. The Declaration of prior invention (37 CFR 1.131) has been accepted. Based on information about the date of the email ("Friday" as recited in the email enclosed with the declaration) and the filing date of Bowers et al. (US Patent 6337760) of 7/17/00, Examiner interprets the email as being the Friday prior to 7/17/00, which is 7/14/00.

11. Applicant's arguments with respect to claims 2, 3, 5, 6, and 18-29 have been considered but are moot in view of the new ground(s) of rejection.

With regards to Hoen, Hoen does suggest a feedback device is suggested (col. 2, lines 5-10).

With regards to Wingo, the Wingo still applies since as noted by Applicant, "data is sent along the optical fibers".

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (703) 605-5298. The examiner can normally be reached on M - Th (8 am to 5 pm).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



gk  
May 29, 2003



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